



## Determination 2013/048

# Regarding the refusal to issue a code compliance certificate and the issue of a notice to fix for a 3-year-old house with monolithic cladding at 98 Shakespeare Road, Milford, Auckland



### 1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are

- the owners of the building, Mr and Mrs R. J. Fris (“the applicants”)
- Auckland Council (including its previous capacity as the North Shore City Council) (“the authority”)<sup>2</sup>, carrying out its duties and functions as a territorial authority or a building consent authority.

1.3 This determination arises from the authority’s decision to refuse to issue a code compliance certificate. The authority does not consider the work complies with the Building Code<sup>3</sup> (First Schedule, Building Regulations 1992).

1.4 The matter to be determined<sup>4</sup> is therefore whether the authority correctly exercised its powers in refusing to issue a code compliance certificate and in issuing a notice to fix. In making this decision, I must consider whether the completed building work complies with the building consent and the relevant provisions of the Building Code.

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<sup>1</sup> The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Ministry are all available at [www.dbh.govt.nz](http://www.dbh.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> The location in which the building work is located was formerly under the jurisdiction of the North Shore City Council. The reference to “the authority” refers to both.

<sup>3</sup> In this determination, unless otherwise stated, references are to sections of the Act and references to clauses are references to the Building Code

<sup>4</sup> Under sections 177(1)(b), 177(2)(d) and 177(2)(f) of the Act

- 1.5 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Ministry to advise on this dispute (“the expert”), and the other evidence in this matter.
- 1.6 The relevant sections of the current Act are set out Appendix A.

## **2. The building work**

- 2.1 The building work in question consists of a large, generally two-storey house with multiple levels that is divided into two separate units. The house is situated on a steeply sloping site that is in a high wind zone and a medium corrosion zone for the purposes of NZS 3604<sup>5</sup>.
- 2.2 The house is a mixture of masonry and light timber framing, supported on concrete floor slabs and strip footings, and is of a long narrow shape and is moderately complex in plan and form. The central section of the house has blockwork masonry walls that support a concrete roof. There are steel portals in several locations where there are large expanses of glazed walls.
- 2.3 The main roofs are at varying levels, have minimal falls, and are clad with pre-finished long run profiled metal with internal gutters. Eaves vary from none on some elevations to over 1m on others, with solid masonry and timber-framed parapet walls constructed at various elevations adjoining the roofing. There also is a proprietary glazed skylight installed. A narrow cantilevered concrete roof projects over the lower unit entrance and this is lined with a single layer of torch-on membrane.
- 2.4 An open terrace is constructed above the concrete roof slab of the lower level garage and the terrace is surrounded by parapet walls on three sides. The slab over the garage is covered with a torch-on membrane draining to an internal gutter and the membrane is covered with screw-fixed wooden planks to form the terrace deck.
- 2.5 Two chimneys constructed in masonry with a plastered finish are located at the exterior of the building. Each adjoins the perimeter of the metal-clad roofs, one at the lower level and one at the upper level. Roof gutters up-slope of the chimneys have been formed using sheets of the metal roofing fixed at the joints with sealant and pop rivets.
- 2.6 The majority of the timber-framed exterior walls are a monolithic cladding system consisting of 4.5mm fibre-cement sheets fixed over a cavity, and covered by a proprietary acrylic plaster system reinforced with fibreglass mesh. Two feature walls adjoining the entrances and one high-level panel are lined with vertical cedar rain screens fixed over painted plywood that is secured to horizontal battens. The exterior of the masonry walls are cement plastered. The external joinery is of powder-coated aluminium.
- 2.7 The expert is of the opinion that it is likely the external wall framing has an H1.2 treatment and the cavity battens have an H3.1 treatment.

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<sup>5</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

### 3. Background

- 3.1 The authority issued building consent No BB1236390 for the house in July 2009. I have seen no records of inspections carried out during construction or advice on the date of completion.
- 3.2 A final inspection was carried out on 6 April 2011 with the record noting that apart from a PS3 for waterproofing membrane in the bathrooms and a swimming pool inspection (which may be reference to ponds at the edge of the courtyard) all that remained was an application for a code compliance certificate.
- 3.3 On 25 May 2012 the applicant wrote to advise the authority that prior to the completion of the building the head contractor went into liquidation and the roofing and cladding subcontractors refused to supply the appropriate producer statements as they had not been paid by the head contractor.
- 3.4 Following a request from an agent representing the applicants (“the applicants’ agent”), a site meeting attended by an officer from the authority and one of the owners was held on 15 June 2012. The authority took photographs of the cladding and the record of the site meeting notes that neither a PS3 producer statement nor a warranty for the plaster cladding had been provided.
- 3.5 On 19 June 2012 the authority emailed the applicants’ agent stating that it was clear there were compliance issues regarding the plaster cladding, including cracking and inadequate ground clearances, and noting that there was no producer statement from the plasterer. The authority was of the view the cladding needed to be assessed by a member of the NZ institute of Building Surveyors and that the assessment should also include a report regarding the cedar cladding which was not included in the approved consent documents.
- 3.6 On 9 July 2012, the supplier of the plaster cladding system carried out a 2-yearly scheduled visual assessment. The supplier wrote to the applicant on 13 August 2012 stating that based on this assessment the exterior cladding ‘met its requirements’ and noting that damage to one corner of the cladding needed to be repaired.
- 3.7 On 30 November 2012, the authority issued a notice to fix. The covering letter referred to the inspection carried out on 15 June 2012 and stated that the building did not comply with Clauses E2 and B2 and that the cedar cladding that had been installed was not shown or described on the building consent.
- 3.8 The ‘particulars of contravention’ attached to the notice listed the following items:
- Areas of vertical gapped cedar weatherboards on horizontal battens were not described in the building consent documentation and their detailing was unclear.
  - The cladding showed many areas of potential failure and non-compliance with Clause E2. In particular there were insufficient ground clearances, and there were cracks in the cladding to areas around the perimeter of the house.
  - Window head flashings, kick-out flashings, barge and saddle flashings had been poorly installed and in the authority’s opinion were not code-compliant.
  - The flashings for vent ducting were absent. Window head flashings, kick out flashings, barge flashings, and saddle flashings have been poorly installed and

the authority considers they do not meet the requirements of the Building Code.

- The minimum requirements of Clause B2 may not have been achieved.

3.9 The Ministry received an application for a determination on 8 January 2013.

## **4. The submissions**

4.1 The applicant did not make a formal submission in support of the application but attached copies of

- the plans and specifications
- the application for the building consent
- the notice to fix issued on 30 November 2012
- the correspondence with the authority
- the correspondence with the supplier of the proprietary cladding components.

4.2 The authority did not acknowledge or make a formal submission in response but provided a copy of the property file on CD Rom to the applicant.

4.3 A draft determination was issued to the parties for comment on 23 April 2013.

4.4 The authority accepted the draft without further comment in a response received on 13 May 2013.

4.5 The applicants made no response to the draft despite a number of requests.

## **5. The expert's report**

5.1 As described in paragraph 1.5, I engaged the services of an expert, who is a member of the New Zealand Institute of Building Surveyors, to assist me. The expert examined the exterior of the house and the interior of the lower level unit on 13 March 2013, and also met with the project architect who provided the expert with a number of photographs taken during the construction of the house. The expert produced a report completed on 8 April 2013. Copies of this report were forwarded to the parties on 9 April 2013.

5.2 The report described the house in general terms and gave some of the background to the construction. The expert noted that the project architect advised that remedial work had been carried out during construction as a result of weathertightness failures associated with the original membrane work.

5.3 In the expert's opinion, the construction quality was 'variable, very good inside, well below average at the base of the cavity behind the cladding'. The expert had concerns regarding the cavity construction behind the proprietary cladding.

### **5.4 Variations**

5.4.1 The expert noted the following differences between the house as constructed and the consented plans and manufacturers' requirements:

- In some places the finished ground level is virtually the same as the finished floor level, with the cladding hanging down into a strip drain.

- There was no evidence of weatherproofing on top of the masonry walls surrounding the centrally located roof terrace.
- The consented specification and details lacked references to the actual cladding elements that had been installed.
- The required flashings to the exterior joinery recessed into the masonry had not been installed.
- The cladding manufacturer's requirements for ground clearances had not been met, with the cladding extending down into the drain wherever there is one and in other areas partly or even totally closed off by either the concrete drive or plaster.
- There was a lack of inter-storey drainage junctions and saddle flashings that were shown on the plans.
- The horizontal open gapped cladding joints as consented had been replaced with sealant filled joints.
- A fire door shown on the plans had been installed but had subsequently been removed.
- The roof terrace was shown to have paving sitting on raised chairs; instead timber decking had been installed over floating timber framing.
- A laundry door had been repositioned.
- Two details shown on the plans (a recessed edge to the fibre-cement backing, and cavity spacers along the edge of the soffit) were substituted with improved details.

## **5.5 Testing and invasive inspections**

5.5.1 The expert found no evidence of damage due to moisture ingress.

5.5.2 The expert carried out a number of invasive inspections to obtain details of concealed construction details. I am prepared to accept that the conclusions reached by the expert after such inspections are indicative of similar situations located elsewhere in the building.

## **5.6 Code compliance**

5.6.1 The expert examined various elements of the house and specifically the items listed in the particulars of contravention attached to the notice to fix. I summarise the expert's comments below:

### **The plaster cladding**

- While the cladding projects a reasonable distance below the bottom plates, it hangs down into the wall perimeter drains where in winter water would lie and this could be drawn up into the wall cavity. Regular maintenance should mitigate the effects caused where the base of the cladding is in contact with the grilles to the drain.
- The cladding had cracked in various locations due to the lack of control joints and the cladding required intensive maintenance. As there were no apparent

horizontal mid-floor joints in the cladding, free drainage and ventilation may not be possible at these locations.

- In some places, the cavity behind the cladding was fully blocked off and large sections of the cladding was neither drained nor ventilated. In addition, no vermin proofing had been installed.
- The vertical transition between the cladding and the blockwork was not effectively constructed and cracking of the cladding was evident.
- The sealant used along the sills and jamb flashings of the exterior joinery installed in the cladding at the upper level would be difficult to maintain and replace.
- The three deeply recessed windows at the lower south elevation lacked mechanical flashings, although the sill detail as constructed seemed to be effective.
- The penetrations through the cladding relied entirely on sealant for protection, which in turn was dependent on effective maintenance.
- The metal flashing over the upper level garage door was un-galvanised and was starting to rust.

#### **The external masonry walls**

- The expert was unable to detect whether any mechanical flashings had been installed to the exterior joinery that was fixed to the plastered masonry. While there was no evidence that these omissions were allowing moisture ingress, they did not comply with the consented plan details.
- The head to the kitchen window lacked a good outward slope or drip edge, with sealant as the only mechanism to prevent moisture ingress.
- While a flashing has not been installed over the garage door of the lower unit, the detail was well protected by the wide canopy overhang.

#### **The cedar cladding**

- The expert examined a sketch and two photographs of the screens lined with cedar rain screen fixed over painted plywood sub-framing, which in turn is secured to horizontal timber battens.
- An invasive inspection showed that the battens were not glued to the plywood substrate, which could lead to water being trapped between the battens and the plywood. However the tops of the battens were sloped and the vertical boards were gapped and these features would allow for most moisture to escape relatively freely.
- The exposed back of the cedar panelling was not stained before it was installed and the bottom of the plywood substrate was not sealed in some instances.
- The bottom of the plywood substrate, where the rain screen stops about 40mm above the torch-on membrane to the garage canopy, had not been sealed but was packed out.

- The vertical junction between the plywood substrate and the plaster cladding has cracked in places
- No flashing installed at the head of the window below the cedar panel (south elevation).

### **The roofs**

- Given that the internal gutters to the uphill sides of the chimneys relied on sealant and pop rivets and there is no sideways fall, the expert considered the horizontal join was vulnerable and unlikely to meet the 15 year durability requirement.
- The roof cap flashings lacked provision for thermal movement and the laps and corner junctions were crudely fixed.
- Some of the brackets supporting the box gutters were starting to rust.
- Where some additional lengths of roofing iron had been added, these were screw fixed through the pans and not the ribs.
- The sealant between the three sections making up the proprietary skylight was not fully protected from full sunlight in accordance with the manufacturer's instructions and was breaking down; this could cause a premature failure of the unit.
- The stop end of the membrane upstand of the narrow roof over the downhill unit was poorly executed.
- Two cap flashings adjoining the high-level terrace parapet walls relied on sealant and nail fixings into the concrete; the nails are likely to rust.
- On the lowest roof, the barge flashing depends on sealant and pop rivets where it meets the wall, and the plain galvanized sheet metal underflashing is buried in the plaster; the unpainted zinc coating is most likely to corrode within 15 years.
- A short fascia board is simply butted up against the unfinished plaster, and plain bright steel nails were used to hold this fascia in place; the nail holes were never filled and the nail heads are now rusting.

### **The roof terrace**

- The battens at the junction of the timber-framed and masonry balustrades of the roof terrace had been nailed directly to the masonry without any damp-proofing separation. There was a lack of the reinforcement tape and the reinforced membrane recommended by the cladding supplier.
- There was a lack of waterproofing beneath the plaster to the top of the solid balustrades, and the plaster was cracking

### **Other issues**

- The expert did not observe any issues arising in regard to Clause E1—Surface water but considered that the removal of the consented fire door may raise issues as to Clause C—Fire safety.

- The expert also noted that the tanking to the buried areas of masonry appeared to be a relatively thin “peel and stick” product that was imperfectly protected by polystyrene. In addition, the roots of the trees planted adjacent to these walls were likely to damage the membrane. Accordingly, the expert was of the opinion that the membrane would not last the required minimum of 50-years as required by the Building Code.
- Electrical cabling was projecting from the cladding at several areas around the house.

5.7 The expert was of the view that a large number of items connected with the roof and wall cladding were unsatisfactory and that the requirements of Clause E2.3.7 may not have been achieved. In other cases reliance on sealant required an intense monitoring and maintenance regime to ensure ongoing compliance; I discuss this further in paragraph 6.5.

5.8 The expert also noted that further investigation should be carried out to determine the full extent of any required remedial work.

## 6. Discussion

6.1 The building consent was issued under the Building Act 2004. Under section 94(1)(a) of the Act an authority must issue a code compliance certificate if it is satisfied, on reasonable grounds, that the building work complies with the building consent.

6.2 Changes to the cladding were noted in the authority’s letter of 30 November 2012, and the expert has also noted a number of variations in the as built construction from the approved plans. I conclude that building work has not been completed in accordance with the building consent and the authority was correct to refuse to issue a code compliance certificate on that basis. I note that the authority inspected the work during construction and undertook a final inspection in April 2011: the final inspection did not raise the compliance issues noted in the notice to fix.

6.3 When considering the issue of a code compliance certificate for a building consent for which there was an inadequate level of detail provided to establish compliance with the Building Code, or as in this case where the as built construction also differs from that consented, the second step is to consider whether the completed building work complies with the Building Code.

6.4 I consider the expert’s report establishes that because of the faults identified (refer paragraph 5.6) the building envelope will not continue to meet the requirements of Clause E2 for the durability periods set out in Clause B2.

6.5 The expert also made several references to the need for rigorous inspection and maintenance to ensure ongoing compliance of certain identified building elements. In previous determinations<sup>6</sup> I have discussed maintenance and inspection regimes and what constitutes ‘normal maintenance’. I am of the view that in this case if those building elements are to remain as constructed, detailed and specific inspection and maintenance requirements should form part of any consent amendment. The inclusion of specific maintenance requirements as a condition of a consent has been covered in previous determinations, for example Determination 2012/065.

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<sup>6</sup> Determination 2012/014 and 2012/065

- 6.6 In conclusion, I am satisfied that the building work does not comply with the Building Code and that the authority was correct in its decision to refuse to issue the code compliance certificate and to issue the notice to fix.
- 6.7 The expert has also queried whether the removal of a fire door has compromised the building in terms of Clause C. I suggest the authority take the appropriate steps to satisfy itself regarding the fire safety of the building.

## **7. What happens next?**

- 7.1 The authority may issue a revised notice to fix that requires the owners to bring the building into compliance with the Building Code. The notice to fix should identify the breaches of the Building Code noted herein and refer to any further defects that might be discovered in the course of investigation and rectification. The notice should not specify how the defects are to be fixed: that is a matter for the owner to propose and for the authority to accept or reject.
- 7.2 The owner should produce a detailed proposal describing how the defects are to be remedied and submit this to the authority for approval. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 7.3 I also note that the expert has identified changes from the consent drawings, and I leave these to the parties to resolve once the appropriate remedial work is satisfactorily completed. Where durability of the remaining building elements rely on rigorous inspection and maintenance any amendment to the consent should make reference to this.

## **8. The Decision**

- 8.1 In accordance with section 188 of the Building Act 2004 I hereby determine that:
- the building work does not comply with the building consent and the authority correctly exercised its powers when it refused to issue the code compliance certificate for consent No BB1236390
  - the building work does not comply with Clause B2 of the Building Code insofar as it relates to Clause E2, and accordingly I confirm the decision to refuse to issue the code compliance certificate and to issue the notice to fix.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 20 August 2013.

John Gardiner  
**Manager Determinations and Assurance**